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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,633	02/13/2004	Geoffrey Alan Scarsbrook	248810US2CONT	5368
22850 7590 08/23/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER MONDT, JOHANNES P	
			ART UNIT 3663	PAPER NUMBER
			NOTIFICATION DATE 08/23/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	Application No. 10/777,633	Applicant(s) SCARBROOK ET AL.	
	Examiner Johannes P. Mondt	Art Unit 3663	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 May 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 11-13, 31, 33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) 2-10 and 14-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 11-13, 31, 33 and 34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/13/07</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

Amendment filed 5/29/07 forms the basis for this Office Action. In said Amendment applicants substantially amended all elected claims 1, 11-13, 31 and 33-34 through substantial amendment of claim 1. Comments on "REMARKS" submitted with said Amendment are included below under "Response to Arguments".

### ***Information Disclosure Statement***

The examiner has considered both items listed in the Information Disclosure Statement filed 3/13/07. It is noted that one of said items is the application itself, for which there would have been no need for acknowledgment. A signed copy of the form equivalent to Form PTO-1449 is herewith enclosed.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. ***Claims 1, 11-13, 31, 33 and 34*** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the claimed product value of mobility times lifetime introduced by

amendment in claim 1 (line 7) has not been disclosed in the original specification including original claims, but instead some dependence on N appears to be included in the written description. Hence said value constitutes new matter.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

***Claim 1*** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitabatake et al (5,328,855) in view of Collins (5,981,057). Kitabatake et al teach a crystalline diamond (their method efficiently annihilates defects in crystals: see col. 1, l. 48-53) prepared by CVD (col. 5, l. 65). Kitabake et al do not necessarily teach the limitation "single crystal". However, it would have been obvious to include said limitation in view of Collins, who, in a patent on a CVD diamond, hence analogous art, teaches the CVD diamond in one embodiment to be a single crystal CVD diamond (col. 2, l. 28-29). In said embodiment said CVD diamond inherently meets at least characteristic (ii) as claimed because no nitrogen was used in at least one embodiment (which uses as inert gas hydrogen instead of nitrogen: see col. 1, l. 43-53), hence, since no nitrogen was available to the diamond during growth no nitrogen could have penetrated into said diamond and hence the nitrogen impurity level cannot be greater than 300 ppb, which, together with the

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"annihilation of defects" and single crystal property, implies the conditions for said characteristic (ii) are met according to applicants' own Specification. See in particular paragraph [0077]. As is evident from Collins the selection of poly-crystal or single-crystal embodiments is available to one of ordinary skill in the art and does not lead to any unexpected results. Moreover, the selection of a single crystal rather than a poly-crystal merely removes grain boundaries, and thereby impediments to mobility and lifetime. Applicant is reminded in this regard that it has been held that mere selection of known materials generally understood to be suitable to make a device, the selection of the particular material being on the basis of suitability for the intended use, would be entirely obvious. In re Leshin 125 USPQ 416.

1. **Claims 31 and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitabatake et al and Collins as applied to claim 1, in view of Sussmann et al (WO 99/64892). As detailed above, claim 1 is unpatentable over Kitabatake et al in view of Collins. Kitabatake et al do not necessarily teach the further limitations as defined by claims 31 and 34. However, it would have been obvious to include said limitations in view of Sussmann et al, who teach the advantageous use of monocrystalline CVD grown diamond (second example of layer 12: page 8) in an electronic element, in particular a radiation detector, hence: detector element (see title, abstract). *Motivation* to include the teaching by Sussmann et al for its specific application of the CVD grown diamond by Kitabake et al derives

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immediately from the relatively high mobility and collection distance required for this application, for which said single crystal CVD diamond is suitable.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

1. **Claim 1** is rejected on the ground of nonstatutory obviousness-type double

patenting as being unpatentable over either claim 4 or claim 5 of USPAT

7,128,974 B2 (to Scarsbrook et al).

An obviousness-type double-patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claim(s) because the examined claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985). Although the conflicting claims are not identical, they are not patentably distinct from

each other because claim 1 is fully anticipated by claim 4 of the allowed claims in 10/739,014.

2. **Claim 1** is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 5 of copending Application No. 11/486,421. The reasons are identical to those put forward in support of the obviousness double patenting rejection of claim 1 in view of either claim 4 or claim 5 in USPAT 7,128,974 provided above.

This is a provisional obviousness-type double patenting rejection.

### ***Response to Arguments***

Applicant's arguments filed 5/29/07 in "REMARKS" have been fully considered but they are not persuasive.

As a preliminary comment applicants describe their amendment in "Discussion of the Amendment" as providing "more objective language". Examiner notes, however, that the alternative on the product of mobility and lifetime is materially entirely different from the alternative on breakdown voltage replaced by it. Therefore, said amendment is substantial.

Turning to "REMARKS", applicants' traverse of the anticipatory obviousness double patenting rejection rests on the observation that the cited patent, i.e., Scarsbrook et al, and the copending application 11/486,421 "all require a thickness of greater than 2

mm", and that "there is no disclosure or suggestion in these claims that any of the recited". However, applicants' arguments are not persuasive because:

(1) the requirement of 2 mm thickness merely implies the cited patent (Scarsbrook et al) does not in any way affect the validity of the anticipatory obviousness double-patenting rejection, i.e., that the claim of applicant is anticipated by the claims cited in the double patenting rejections; while

(2) as pointed out previously, alternatives (i), (iii) and (iv) of applicants' claim 1 are identical to alternatives (5), (3) and (4), respectively, in claim 1 of the Scarsbrook et al patent and are also identical to alternatives (5), (3) and (4) of claim 4 in the patent application (11/486,421).

(3) That no obviousness double-patenting rejection would be required because of the simultaneous filing is not supported by the MPEP; please note the reasons for non-statutory double patenting include preventing harassment by multiple assignees, as already made of record in the previous office action (and underscored in the current one: see overleaf). Barring prior art, applicants are entitled to "a patent" for their invention, not a plurality thereof.

Therefore, the anticipatory obviousness double patenting rejection is maintained.

Furthermore, counter to applicants' argument requesting a rejoinder (page 9 of "REMARKS") since none of the claims are allowable (see double patenting and art rejections overleaf), no rejoinder is in order.

### ***Conclusion***



Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPM

August 19, 2007

Primary Patent Examiner:

  
Johannes Mondt (TC3600, Art Unit: 3663)